



CLAIMS AS AMENDED IN RED INK

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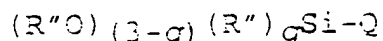
Claim 1 (amended)

A process for making an organopolysiloxane composition comprising mixing the following components

- (i) a polymer having not less than two groups bonded to silicon which are hydroxyl or hydrolysable groups or a partial condensate thereof;
- (ii) a surface active filler;
- (iii) an organosilane having at least two silicon bonded reactive groups;
- (iv) a catalyst and
- (v) an adhesion promoter

characterized, in that, the organosilane (iii), [the catalyst (iv) and the polymer (i) are mixed together prior to adding the filler (ii) and that the organosilane (iii) is mixed with the surface active filler (ii) prior to the introduction of the adhesion promoter (v).

2. A process according to claim 1, in which the adhesion promoter (v) has at least one hydrolysable group and has the formula



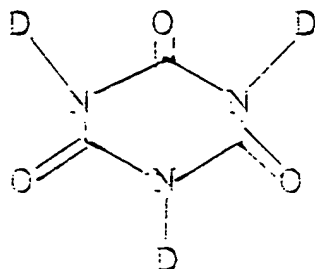
wherein

R'' is selected from the group consisting of alkyl and haloalkyl radicals having up to 8 carbon atoms;

Q is selected from the group consisting of saturated, unsaturated and aromatic hydrocarbon radicals functionalised by a functional group selected the group consisting of amino, mercapto, ether, epoxy, isocyanato, cyano, isocyanurate acryloxy and acyloxy groups and mixtures thereof; and  
q is 0 to 3.

Claim 3 (amended)

A process according to claim 2, in which the adhesion promoter (v) comprises a compound of formula



wherein one D substituent is  $-R_y-Si-(R''')_x(OR''')_{3-x}$ , in which R is selected from the group consisting of alkylenearylene, alkylene, cycloalkylene and halo-substituted derivatives thereof.

$R'''$  is selected from the group consisting of alkyl and haloalkyl radicals having up to 6 carbon atoms:

x is from 0 to 3; and

y is 0 or 1; and

the remaining D substituents are independently selected from the group consisting of

- (i)  $-R_y-Si-(R''')_x(OR''')_{3-x}$ , wherein x is from 0 to 3,
- (ii) a styryl radical,
- (iii) a vinyl group,
- (iv) an allyl group,
- (v) a chloroallyl group and
- (vi) a cyclohexenyl group.

4. A process according to claim 2, in which the adhesion promoter (v) is 1,3,5-tris (trimethoxysilylpropyl) isocyanurate.

5. A process according to claim 1 or claim 2, in which the adhesion promoter (v) is selected from the group consisting of aminoalkylalkoxy silanes, epoxyalkylalkoxy silanes, mercaptoalkylalkoxy silanes



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and reaction products of an epoxyalkylalkoxy silane with an amino-substituted alkoxysilane and an alkylalkoxysilane.

6. A process according to claim 1, in which the surface active filler (ii) is selected from the group consisting of silica, titania, zinc oxide, clays, mica and precipitated calcium carbonate.
7. A process according to claim 1, in which the organosilane (iii) is a cross-linker.
8. A process according to claim 1, in which the organosilane (iii) is an alkoxy silane selected from the group consisting of methyl trimethoxy silane, vinyl trimethoxy silane, methyl triethoxy silane, and vinyl triethoxy silane, isopropyl trimethoxy silane, propyl trimethoxy silane, phenyltrimethoxysilane, tetraethoxysilane and isobutyl trimethoxy silane.
9. A process according to claim 1, in which the polymer (i) is an organopolysiloxane having polydiorganosiloxane chains according to the general formula  $-(R^2)_2SiO)_t-$  wherein each  $R^2$  is independently selected from the group consisting of methyl and ethyl groups and  $t$  has a value of from 200 to 1500, the organopolysiloxane being terminated by at least one group selected from the group consisting of  
- $Si(R^2)_c(OH)_{3-c}$ ;  
- $Si(R^2)_d(OR^3)_{3-d}$ ; and  
- $Si(R^2)_2-R^4-Si(R^2)_k(OR^5)_{3-k}$  wherein each  $R^2$  is independently selected from the group consisting of methyl and ethyl groups;

each  $R^3$  is independently selected from the group consisting of alkyl and oxyalkyl groups in which the alkyl groups have up to 6 carbon atoms;  
 $R^4$  is a divalent hydrocarbon group which may be interrupted by one or more siloxane spacers having up to 6 silicon atoms;  
each  $R^5$  is independently an alkyl group having up to 6 carbon atoms; and  
each of  $c$ ,  $d$  and  $k$  have the value 0, 1 or 2.

10. A process according to claim 1, in which the organosilane (iii), the catalyst (iv) and the polymer (i) are mixed together prior to adding the filler (ii).
11. A process according to claim 1, which process is a batch process comprising the steps of:
  - a) loading the polymer (i), the organosilane (iii) and the catalyst (iv) into an appropriate mixer and mixing thoroughly to form a blend;
  - b) adding the surface active filler (ii) into the blend and ensuring that it is thoroughly dispersed for a predetermined period of time; and
  - c) adding the or each adhesion promoter (v) and mixing until a final product is sufficiently homogeneous;in which the mixture resulting from step (b) and/or the final product of step (c) undergoes a devolatilising step.
12. A process according to claim 1, which process is a continuous process utilising a screw extruder having two mixing zones interlinked by an external residence zone comprising the steps:-

- a) mixing the polymer (i), the catalyst (iv) and the organosilane (iii) in the first mixing zone prior to the introduction of the surface active filler (ii);
  - b) introducing the surface active filler (ii) into the mixture resulting from step (i) in the first mixing zone and mixing until thoroughly dispersed, prior to entry into the external residence zone; and
  - c) introducing one or more adhesion promoters (v) into the second mixing zone.
13. A process according to claim 1, which process is a continuous process comprising supplying
- a) a premix of the polymer (i), the organosilane (iii) and the catalyst (iv), and
  - b) the surface active filler (ii),
- to a continuous mixing apparatus comprising a body casing (1,1a, 1b) having a material feed opening at the top of said casing (8,14,9), a mixture discharge outlet (3) at the bottom of said casing (1,1a, 1b), a rotating disk (11) within the casing (1,1a, 1b); and an upper mixing compartment (10) above said rotating disk (11) and a lower mixing compartment (12) below said rotating disk; wherein
- the premix (a) is mixed with the surface active filler (ii) in the upper mixing compartment (10) by rotation of the disk (11) to form a mixture, the mixture is transferred to the lower mixing compartment (12) and one or more adhesion promoters (v) is/are added prior to, subsequent to or concurrent with discharging the mixture through the discharge outlet (3).

14. A process according to claim 13, in which subsequent to discharging the mixture, the mixture is de-aired in a de-airer (102) and the adhesion promoter (v) is introduced into the mixture during passage of the mixture through the de-airer (102).
15. An organopolysiloxane composition obtainable by the process according to claim 1.
16. A sealant comprising a composition according to claim 15.



## STATUS OF CLAIMS

Claim 1 (currently amended)

Claim 2 (original)

Claim 3 (currently amended)

Claims 4 through 9 (original)

Claim 10 (cancelled)

Claims 11 through 16 (original)

**CLAIMS 17 AND 18 (NEW)**



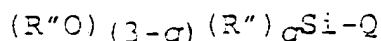
Claim 1 (amended)

A process for making an organopolysiloxane composition comprising mixing the following components

- (i) a polymer having not less than two groups bonded to silicon which are hydroxyl or hydrolysable groups or a partial condensate thereof;
- (ii) a surface active filler;
- (iii) an organosilane having at least two silicon bonded reactive groups;
- (iv) a catalyst and
- (v) an adhesion promoter

characterized, in that, the organosilane (iii), the catalyst (iv) and the polymer (i) are mixed together prior to adding the filler (ii) and that the organosilane (iii) is mixed with the surface active filler (ii) prior to the introduction of the adhesion promoter (v).

2. A process according to claim 1, in which the adhesion promoter (v) has at least one hydrolysable group and has the formula



wherein

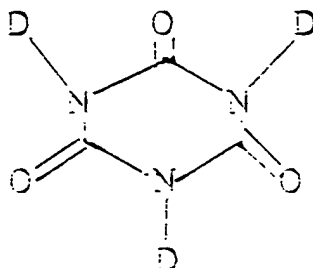
R'' is selected from the group consisting of alkyl and haloalkyl radicals having up to 8 carbon atoms;

Q is selected from the group consisting of saturated, unsaturated and aromatic hydrocarbon radicals functionalised by a functional group selected the group consisting of amino, mercapto, ether, epoxy, isocyanato, cyano, isocyanurate acryloxy and acyloxy groups and mixtures thereof; and  
q is 0 to 3.



Claim 3 (amended)

A process according to claim 2, in which the adhesion promoter (v) comprises a compound of formula



wherein one D substituent is  $-R_y-Si-(R'')_x(OR'')_{3-x}$ , in which R is selected from the group consisting of alkylenearylene, alkylene, cycloalkylene and halo-substituted derivatives thereof;

$R''$  is selected from the group consisting of alkyl and haloalkyl radicals having up to 8 carbon atoms;

x is from 0 to 3; and

y is 0 or 1; and

the remaining D substituents are independently selected from the group consisting of

- (i)  $-R_y-Si-(R'')_x(OR'')_{3-x}$ , wherein x is from 0 to 3,
- (ii) a styryl radical,
- (iii) a vinyl group,
- (iv) an allyl group,
- (v) a chloroallyl group and
- (vi) a cyclohexenyl group.

- 4. A process according to claim 2, in which the adhesion promoter (v) is 1,3,5-tris (trimethoxysilylpropyl) isocyanurate.
- 5. A process according to claim 1 or claim 2, in which the adhesion promoter (v) is selected from the group consisting of aminoalkylalkoxy silanes, epoxyalkylalkoxy silanes, mercaptoalkylalkoxy silanes



and reaction products of an epoxyalkylalkoxy silane with an amino-substituted alkoxysilane and an alkylalkoxysilane.

6. A process according to claim 1, in which the surface active filler (ii) is selected from the group consisting of silica, titania, zinc oxide, clays, mica and precipitated calcium carbonate.
7. A process according to claim 1, in which the organosilane (iii) is a cross-linker.
8. A process according to claim 1, in which the organosilane (iii) is an alkoxy silane selected from the group consisting of methyl trimethoxy silane, vinyl trimethoxy silane, methyl triethoxy silane, and vinyl triethoxy silane, isopropyl trimethoxy silane, propyl trimethoxy silane, phenyltrimethoxysilane, tetraethoxysilane and isobutyl trimethoxy silane.
9. A process according to claim 1, in which the polymer (i) is an organopolysiloxane having polydiorganosiloxane chains according to the general formula  $-(R^2)_2SiO)_t-$  wherein each  $R^2$  is independently selected from the group consisting of methyl and ethyl groups and  $t$  has a value of from 200 to 1500, the organopolysiloxane being terminated by at least one group selected from the group consisting of  
- $Si(R^2)_c(OH)_{3-c}$ ;  
- $Si(R^2)_d(OR^3)_{3-d}$ ; and  
- $Si(R^2)_2-R^4-Si(R^2)_k(OR^5)_{3-k}$  wherein each  $R^2$  is independently selected from the group consisting of methyl and ethyl groups;

each  $R^3$  is independently selected from the group consisting of alkyl and oxyalkyl groups in which the alkyl groups have up to 6 carbon atoms;  
 $R^4$  is a divalent hydrocarbon group which may be interrupted by one or more siloxane spacers having up to 6 silicon atoms;  
each  $R^5$  is independently an alkyl group having up to 6 carbon atoms; and  
each of c, d and k have the value 0, 1 or 2.

10. A process according to claim 1, in which the organosilane (iii), the catalyst (iv) and the polymer (i) are mixed together prior to adding the filler (ii).
11. A process according to claim 1, which process is a batch process comprising the steps of:
  - a) loading the polymer (i), the organosilane (iii) and the catalyst (iv) into an appropriate mixer and mixing thoroughly to form a blend;
  - b) adding the surface active filler (ii) into the blend and ensuring that it is thoroughly dispersed for a predetermined period of time; and
  - c) adding the or each adhesion promoter (v) and mixing until a final product is sufficiently homogeneous;in which the mixture resulting from step (b) and/or the final product of step (c) undergoes a devolatilising step.
12. A process according to claim 1, which process is a continuous process utilising a screw extruder having two mixing zones interlinked by an external residence zone comprising the steps:-

- a) mixing the polymer (i), the catalyst (iv) and the organosilane (iii) in the first mixing zone prior to the introduction of the surface active filler (ii);
  - b) introducing the surface active filler (ii) into the mixture resulting from step (i) in the first mixing zone and mixing until thoroughly dispersed, prior to entry into the external residence zone; and
  - c) introducing one or more adhesion promoters (v) into the second mixing zone.
13. A process according to claim 1, which process is a continuous process comprising supplying
- a) a premix of the polymer (i), the organosilane (iii) and the catalyst (iv), and
  - b) the surface active filler (ii),
- to a continuous mixing apparatus comprising a body casing (1,1a, 1b) having a material feed opening at the top of said casing (8,14,9), a mixture discharge outlet (3) at the bottom of said casing (1,1a, 1b), a rotating disk (11) within the casing (1,1a, 1b); and an upper mixing compartment (10) above said rotating disk (11) and a lower mixing compartment (12) below said rotating disk; wherein
- the premix (a) is mixed with the surface active filler (ii) in the upper mixing compartment (10) by rotation of the disk (11) to form a mixture, the mixture is transferred to the lower mixing compartment (12) and one or more adhesion promoters (v) is/are added prior to, subsequent to or concurrent with discharging the mixture through the discharge outlet (3).

14. A process according to claim 13, in which subsequent to discharging the mixture, the mixture is de-aired in a de-airer (102) and the adhesion promoter (v) is introduced into the mixture during passage of the mixture through the de-airer (102).
15. An organopolysiloxane composition obtainable by the process according to claim 1.
16. A sealant comprising a composition according to claim 15.
17. A process according to claim 1 in which the adhesion promoter (v) is selected from the group consisting of aminoalkylalkoxysilanes, epoxyalkylalkoxysilanes, mercaptoalkylalkoxysilanes and reaction products of an epoxyalkylalkoxysilane with an amino-substituted alkoxysilane and an alkylalkoxysilane.
18. A process according to claim 2 in which the adhesion promoter (v) is selected from the group consisting of aminoalkylalkoxy silanes, epoxyalkylalkoxy silanes, mercaptoalkylalkoxy silanes and reaction products of an epoxyalkylalkoxy silane with an amino-substituted alkoxysilane and an alkylalkoxysilane.